

SECTION 16421 - SURGE ARRESTERS

City of San Diego, CWP Guidelines

PART 1 -- GENERAL

1.1 WORK OF THIS SECTION

- A. The WORK of this Section includes providing surge arresters with mounting for the protection of electrical power equipment against surges caused by switching.

1.2 RELATED SECTIONS

- A. The WORK of the following Sections applies to the WORK of this Section. Other Sections of the specifications, not referenced below, shall also apply to the extent required for proper performance of this WORK.

- 1. Section 16050 Basic Electrical Materials and Methods
- 2. Section 16310 Unit Substation
- 3. Section 16360 Medium Voltage Switchgear Center
- 4. Section 16402 Electrical Service and Distribution
- 5. Section 16422 Surge Protection for High Voltage Equipment

1.3 CODES

- A. The WORK of the Section shall comply with the current editions, with revisions, of the following codes and City of San Diego Supplements:

- 1. National Electrical Code

1.4 SPECIFICATIONS AND STANDARDS

- A. Except as otherwise indicated, the current editions of the following apply to the WORK of this Section:

- 1. ANSI C 62.1 Surge Arresters for AC Power Circuits
- 2. NEMA LA 1 Surge Arresters

1.5 SHOP DRAWINGS AND SAMPLES

- A. The following shall be submitted in compliance with Section 01300:

- 1. Manufacturer's product data including catalogue cuts for arresters.
- 2. Shop drawings showing arrester mounting.
- 3. Information on at least one successfully performing installation of comparable size and complexity designed and fabricated in the recent past by the manufacturer responsible for this WORK, including contact names, addresses, and telephone numbers.

1.6 OWNER'S MANUAL

- A. The following shall be included in the OWNER'S MANUAL in compliance with Section 01300:

- 1. Manufacturer's installation instructions.

2. Manufacturer's maintenance procedures.
3. Manufacturer's certified test data for arresters showing compliance with ANSI C 62.1.

1.7 FACTORY TESTING

- A. **Product Testing:** Products shall be tested at the factory for compliance with [ANSI C 62.1] [NEMA LA 1].
- B. **Tests:** The following tests shall be made on each arrester in conformance with ANSI 62.1:
 1. Power-frequency spark-over
 2. Radio interference voltage
 3. Sealing
- C. **Witnesses:** The OWNER and the CONSTRUCTION MANAGER (at the option of either) reserves the right to witness factory tests.

1.8 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. **Delivery of Materials:** Products shall be delivered in original, unbroken packages, containers, or bundles bearing the name of the manufacturer.
- B. **Storage:** Products shall be carefully stored in a manner that will prevent damage and in an area that is protected from the elements.

1.9 QUALIFICATIONS

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NTS: In the paragraph below, define the terms "comparable size and complexity" for the equipment or system specified. Requiring experience of more than one successful project requires sound justification and prior written approval from the City Project Manager.

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- A. **Manufacturer:** Company specializing in surge arresters with at least one successfully performing installation of comparable size and complexity constructed during the recent past. Equipment of comparable size and complexity shall have the following characteristics: [].

PART 2 -- PRODUCTS

2.1 GENERAL

- A. **General:** Only products certified as complying with the indicated requirements shall be provided.
- B. **Type:** The surge arresters shall be valve-type or gapless metal oxide designed to protect electrical power distribution equipment against overvoltages.

2.2 CLASSIFICATION OF ARRESTERS

- A. **General:** Surge arresters shall be classified according to ANSI C 62.1 test requirements.
- B. **Station Class:** Where indicated, station class arresters shall be provided on electrical distribution equipment rated above 10,000 KVA unless otherwise indicated.
- C. **Intermediate Class:** Where indicated, intermediate class arresters shall be provided on electrical distribution equipment rated 10,000 KVA and below unless otherwise indicated.
- D. **Distribution Class:** Where indicated, distribution class arresters shall be provided on electrical power distribution equipment.

2.3 RATING

- A. The surge arresters shall be rated for [21 kV] [].

2.4 NAMEPLATES

- A. **Nameplates:** Nameplates of stainless steel shall be engraved or stamped and fastened to the arresters. Nameplates shall contain the manufacturer's name, model, serial number, size, characteristics, and appropriate data describing the performance ratings.

2.5 MANUFACTURERS

- A. **Manufacturers:** Substation transformers shall include [Type HMX] metal oxide arresters manufactured by one of the following (or equal):

Westinghouse
General Electric

PART 3 -- EXECUTION

3.1 INSTALLATION

- A. Arresters shall be installed in accordance with the manufacturer's written installation instructions.
- B. Surge arresters shall be mounted adjacent to equipment terminals.
- C. Terminations shall be torqued as recommended by the manufacturer.
- D. Except as otherwise indicated, surge arresters shall be mounted at [21 kV] [or] [4.16 kV] bus.

** END OF SECTION **